STANDARDIZED TERMINOLOGY AND THE EHR

There is an increasing demand for accessible, detailed health care information and record keeping systems to both providers and patients that provide information across the continuum of care and support quality measurement and improvement. Barriers to realizing the benefits of documentation include differing terminologies, unstandardized formatting, and inaccessible documentation. Having the appropriate tools in place is vital to ensuring that the continuity, safety, and quality of care are supported across the multiple handovers between various providers involved in a patient's care.

Researchers, practitioners, and hospital administrators view recordkeeping as an important element leading to continuity of care, safety, quality care, and compliance.[1] A standard plan of care is a critical component in providing safe, appropriate and accountable health care. Though required by the Joint Commission on Accreditation of Healthcare Organizations, current care plans do little to enhance information flow or the mindfulness needed to support effective decision making, continuity of care, and patient safety.[2] Providing safe and effective inter-professional care requires understanding and visibility of the unique aspects of care from each specific discipline that can be captured across all disciplines. A vital element in differentiating between the purposes and practices of nursing and medicine stems from the professional languages and terminologies that are used and understood within and between these disciplines.[3] Studies have demonstrated how an underlying culture of shared meanings can either be reinforced by a recordkeeping system or work against it, thus rendering the system less effective.[4] Variation in the terminology and format utilized for nursing documentation (consisting of care planning, interventions, care coordination, etc.) hinder identification of uniform and best practices for representing and communicating nursing information. Nurses need tools to promote a shared understanding of their care and decisions both within the nursing profession and among the inter-professional team. This shared understanding of all aspects of care can facilitate continuity and simplify inter-professional efforts to coordinate care and achieve desired patient outcomes.

There is wide variation in documentation and care planning practices between units and between health care organizations. Variations in content and formatting decrease the utility of the patient medical records. Various studies have concluded that medical records do not accurately reflect the patient's condition or care given, hampering the ability to evaluate   healthcare services. Cost implications alone justify a call-to-action to redesign documentation systems so they are patient-centric and aligned with intended purposes.[5]

The challenge, therefore, is to design systems that reap the benefits of standardization in terms of more accurate, precise, and up-to-date information transfer among all members of the inter-disciplinary team.[6] A standard nursing language will enable the continuous retrieval and analysis of documentation over time and across care settings to improve quality, support evidence-based practice and achieve desired outcomes.

The overall requirement for quality patient care, internal control, efficiency, and cost containment, has made it vital to express nursing knowledge in a meaningful way that can be shared across disciplines and care settings. Standardizing nursing language facilitates communication among nurses and between health care providers, comprehension of nursing interventions, improved

patient care, enhanced data collection, evaluation of care, and outcomes. The ability to measure nursing care and its impact on patient care is essential to validating the contribution of nursing to healthcare and patient safety. In addition, it facilitates informed decisions pertaining to staffing ratios/acuity. The entire profession of nursing benefits from being provided a means to document, store, and retrieve evidence-based practice in a semantic way to facilitate nursing research and reveal the impact of nursing care through electronic means.[7]

It is impossible for any health care-related discipline to implement electronic documentation without having a standardized language or vocabulary to describe key components of the care process.[8] Therefore, the first step in the standardization process is to identify common nursing terminology already utilized. ANA currently recognizes 13 standardized languages that support nursing practice, ten of which document nursing care. An approved language must support documentation on an information system or electronic health record and meet the criteria used by ANA in evaluating standardized languages that include the terminology used, how the terms connect to each other, and how easily records are stored, retrieved, secured and kept confidential. Even though development of a standardized nursing language has not yet been achieved, work is continually progressing toward achieving this goal. Measurement of nursing care through a standardized vocabulary by way of EHR leads to the development of databases that provide evidence-based standards that can be developed to validate the contribution of nurses to patient outcomes.[9]

Nurses are currently engaged in an ongoing pursuit to define a standardized method for documentation that is accurate, precise, up-to-date, and optimal for incorporation into EHRs. All areas of health care benefit with using a method to resolve issues arising from the use of multiple terminologies and language. Nursing documentation covers a wide variety of issues, topics, and systems that are intertwined and build on one another to achieve patient goals. Nurses bear a large burden in both managing and implementing the inter-disciplinary team's plan for the patient, as well as documenting the care and progress toward goals.[10] Varied terminologies and language inhibits direct comparison and exchange of nursing information that is critical for outcomes analysis.

Having concluded that terminologies are foundational to the standardization of nursing documentation and verbal communication that will lead to a reduction in errors and increase the quality, and continuity of care, the ANA Committee for Nursing Practice Information Infrastructure (CNPII) defined specific criteria to be used to recognize standardized terminologies.[11] The ANA CNPII determined that terminologies are needed to reflect clear and unambiguous concepts and documented testing of reliability, validity, and clinical usefulness in practice.[12] The standardized nursing terminologies recognized by the ANA are vehicles for aggregation of nursing data recorded in EHRs used to improve quality of patient care and patient safety.[13]

Of the ANA approved terminologies, the three most recognized, well developed and most applicable terminologies to nursing practice are referred to as N3 and include:

1) NANDA – International - North American Nursing Diagnosis - is a nursing diagnosis classification developed to describe judgments made by nurses in providing care.

2) NIC - Nursing Intervention Classification – NIC is a comprehensive, research-based standardized classification of interventions that nurses perform.
3) NOC – Nursing Outcomes Classification – NOC is an outcomes measurement along a continuum and is responsive to nursing interventions.

These three terminologies provide the most comprehensive terminology in that each includes terms to describe care in all types of settings covering diagnosis, intervention, and outcomes. They also have infrastructures in place to be able to maintain and evolve the terminologies across time.[14] In addition, the development of all three resulted from research involving literature review and the extensive number of nurses that provided input on the use of N3.[15] This is indicative by the majority of nursing programs that have significantly increased their use of N3 in addition to the fact that nurses today are most familiar with the terminologies of N3.

Research has addressed the need for more standardization in the care planning process. Even though documentation systems capture care, recorded information is of little value if meaning is not shared by users. Despite significant achievements, developing a single terminology that meets all the needs of users is an attractive goal; however, it continues to elude the nursing informatics community. Many organizations are working collaboratively toward developing standards for nursing terminology with the goal of facilitating the comparison and exchange of nursing information and that these efforts will result in greater coherence between nursing terminologies and terminologies used in other areas of health care.

Work is underway through the SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms) method which allows for the use of multiple nursing language sets in a standardized format within an EHR[16] and supports healthcare documentation through the continuum of care.[17] SNOMED CT is recognized by the National Centers for Vital and Health statistics and the Consolidated Health Informatics Initiative as an acceptable standard for the Federal Patient Medical Record Information effort and is an ANA recognized terminology.[18]

This method offers a broad coverage of terminology that supports the N3 terminologies mentioned above forming a subset of SNOMED CT. SNOMED CT is concept-based which means that each concept has a distinct definition and a unique code identifier.[19] Its terminology is comprised of codes, concepts and relationships used precisely in recording and representing clinical information across the scope of healthcare. The SNOMED CT method also consists of various hierarchies that include procedures, clinical findings, nursing diagnoses, disorders, diseases, clinical observations, signs, symptoms, medications, etc. that link one concept to another concept for defining each concept down to its specific meaning. SNOMED CT encompasses diagnosis, interventions, and outcomes and can be used to encode nursing documentation of the full healthcare encounter (acute care, home care, hospice care, long-term care, and health care clinic visits) as well as assessments, flow-sheets, care plans, task lists and nursing notes within the EHR. SNOMED CT also provides interoperable data extraction and analysis that can be shared across clinicians, clinical settings and organizations both nationally and internationally.[20]

Recommended relationships that come from ANA's recognized terminology systems need to exist between the problem, intervention, and outcomes that are within each individual nursing terminology system. Nursing terminology systems have been integrated within SNOMED CT;

however, it does not reflect the comprehensive knowledge and explicit terminology structure represented within the standardized nursing terminologies.[21] SNOMED CT only provides the concepts needed to develop this knowledge representation within EHRs.[22] Development of templates and forms within the EHR need to reflect critical information that exists at the point of care. Use of these templates and forms in conveying nursing experiences and interventions presents documentation in a structured way through a computer-based system.[23]

Collaborative efforts among developers of nursing terminology have occurred with the integration of the N3 terminologies in SNOMED CT to ensure not only the accuracy of terminology representation but also to validate the cross-mappings and the accurate representation of nursing concepts. The N3 terminology developers have ensured content updates on a regular basis in SNOMED CT as well as assuring the quality and comprehensiveness of the terminologies is sustained and meets current standards for assessable concept representation. The use of the SNOMED CT method, linked with a set of nursing languages defined through terminology maps, can provide the uniformity required for clear-cut data storage and retrieval and fosters meaningful interaction between the inter-professional team.

Another method of interest is that of the Hands-on Automated Nursing Data System (HANDS) initiative which is a computerized recordkeeping repository and database system that utilizes the N3 terminologies to represent nursing diagnosis, outcomes, and interventions.[24] Initially, standardized terminologies had been developed for the main purpose of representing nursing in health care databases and generating comparable nursing data for evaluating nursing practice.[25] However, this data was not comparable and a majority of the time not retrievable due to the variability of practices by vendors integrating terminology into their systems. The HANDS initiative was developed to remedy this situation. The HANDS method is comprised of a standardized interface, database, rules of data entry and rules for use of the plan in hand-offs and in inter-disciplinary communication.

The HANDS method addresses the needs for summary patient care information that is standardized, meaningful, accurate, and readily available to all clinicians involved in a patient's care across time and space ensuring continuity, quality, and safety of patient care.[26] It also facilitates clinician behaviors (mindfulness) and supports inter-disciplinary decision making that is based on shared knowledge among clinicians involved in a patient's care. Recognition that tools are needed to support the collective mind of the inter-disciplinary team that surrounds a patient's care is evident. In utilizing HANDS, the patient's plan is updated at every nurse hand-off allowing the inter-disciplinary team to track the story about care and progress toward desired outcomes in a standardized format across time and units. HANDS research, to date, supports evidence that N3 can be successfully integrated into a standardized, technology-supported care planning method and generate comparable data to evaluate nursing practice.[27] The HANDS method already includes a number of features that are adaptable to accommodate the needs of the inter-disciplinary team and has been designed to work in and across all types of settings. Future studies are being planned to improve this method for inter-disciplinary use as well as to effectively integrate it in all clinical information systems across institutions to facilitate meaningful use.[28] Interoperability, one of healthcare's most important goals of data exchange, enhances communication between providers, improving continuity of care and patient outcomes. Consequently, the heart of health informatics standards is requirements for comparability and interchange of health information.[29] A current

study of the HANDS method provided evidence that it is a valuable and stable tool. However, most of the benefits of this method can only be realized through wide-scale adoption and use that in turn encourages a commitment that cannot be achieved when only one or two units in a system have adopted this method.[30] Without widespread adoption and use of this method, best practices and dissemination of these to practitioners at the point of care is difficult to achieve.

Full interoperability is the goal to be achieved across all areas and levels of practice in the health care continuum and can be achieved through the consistent utilization of a standardized nursing language that provides accurate, complete, and up-to-date patient information along with the method of cross-mapping between assorted terminologies that are currently in use. Fortunately, capturing and manipulating data, that not only regards nursing effectiveness and intervention, that also provides an interface that captures continuity, quality, and safety of patient care among an inter-disciplinary team, is continually being perfected. Ultimately, effective communication regarding patient care through use of an EHR will lead to improved continuity, safe care, and achievement of desired patient outcomes. All areas of health care benefit with using a method to resolve issues arising from the use of multiple terminologies and language.

References

1. Keenan, Gail M., Yakel, Elizabeth, Tschannen, Dana, Mandeville, Mary. (2008).
Documentation and the Nurse Care Planning Process, Chapter 49. Retrieved from
http://www.ncbi.nlm.nih.gov/books/NBK2674/

2. Keenan, G., Yakel, E. (2005). Promoting Safe Nursing Care by Bringing Visibility to the
Disciplinary Aspects of Interdisciplinary Care. Retrieved from
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1560582/

3. Schwirian, Patricia M. (2013) Informatics and the Future of Nursing: Harnessing the Power of
Standardized Nursing Terminology. Bulletin, June/July. Retrieved from
http://www.asis.org/Bulletin/June-13/JuneJul13_Schwirian.html

4. Duff, C., Endsley, P., Chau, E., Morgitan, J. (2012). Standardized Nursing Languages –
Position Statement. National Association of School Nurses.

5. Keenan, Yakel, Tschannen, Mandeville, *op. cit.*

6. *Ibid.*

7. *Ibid.*

8. Schwirian, *op. cit.*

9. Rutherford, M., (Jan. 31, 2008) Standardized Nursing Language: What Does It Mean for
Nursing Practice? OJIN: The Online Journal of Issues in Nursing. Vol. 13 No. 1.

10. Keenan, Yakel, Tschannen, Mmandeville, *op. cit.*

11. Lundberg, C., Warren, J., Brokel, J., Bulechek, G., Butcher, H., McCloskey Dochterman, J.,
Johnson, J., Mass, J., Martin, K., Moorhead, S., Spisla, C., Swanson, E., & Giarrizzo-Wilson, S.
(June, 2008). Selecting a Standardized Terminology for the Electronic Health Record that Reveals
the Impact of Nursing on Patient Care. Online Journal of Nursing Informatics (OJNI), 12, (2).
Available at http://www.ojni.org/12_2/lundberg.pdf

12. *Ibid.*

13. *Ibid.*

14. Keenan, Yakel, Tschannen, Mandeville, *op. cit.*

15. *Ibid.*

16. Duff, Endsley, Chau, Morgitan, *op. cit.*

17. Lundberg, Warren, Brokel, Bulechek, Butcher, McCloskey Dochterman, Johnson, Mass,
Martin, Moorhead, Spisla, Swanson, Giarrizzo-Wilson, *op. cit.*

18. Keenan, Yakel, Tschannen, Mandeville, *op. cit.*

19. Lundberg, Warren, Brokel, Bulechek, Butcher, McCloskey Dochterman, Johnson, Mass,
Martin, Moorhead, Spisla, Swanson, Giarrizzo-Wilson, *op. cit.*

20. *Ibid.*

21. *Ibid.*

22. *Ibid.*

23. *Ibid.*

24. Keenan, Yakel, *op. cit*.

25. Keenan, Yakel, Tschannen, Mandeville, *op. cit.*

26. *Ibid.*

27. *Ibid*.

28. *Ibid*

29. Hardiker, N., Hoy, D., Casey, A. (2000). Standards for Nursing Terminology. Retrieved from
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC129660/

30. Keenan, Yakel, Tschannen, Mandeville, op. cit.